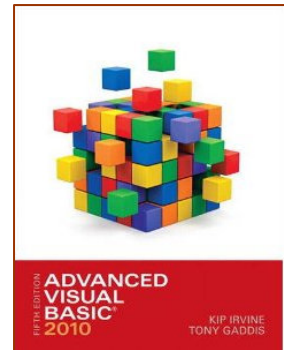


Answers to Review Questions

Advanced Visual Basic 2010, 5th Edition, by Kip Irvine and Tony Gaddis

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Chapter 1: Classes

True or False

1. False
2. True
3. False
4. False
5. False
6. True
7. False
8. False
9. True
10. True
11. False

Short Answer

1. No, you can write: `If isFullTime Then . . .`
2. Presentation tier
3. As class methods
4. Middle (business logic) tier
5. At runtime, when multiple instances of the class exist, no more than a single copy of a shared variable exists. In contrast, each instance of the class will contain its own copy of a non-shared variable.
6. Shared property:

```
class Window
    Public Shared Property Color as String
```
7. Declaring the `MyMethod` method:

```
Sub MyMethod(ByRef str As String)
```
8. Information hiding (encapsulation)
9. Create public properties that get and set the variable's value.

10. Constructor with optional parameters:

```
Class Hero
    Public Sub New(Optional ByVal pStrength As Integer = 0,
        Optional ByVal pIntelligence As Integer = 0)
        Strength = pStrength
        Intelligence = pIntelligence
    End Sub
```

11. The Set section is omitted.
12. The Clone method.
13. Right-click the project name in the Solution Explorer window, select Add, and select Class.
14. Variable declaration:

```
Private Shared smDefaultColor As String
```

15. Parameterized constructor

16. Opening a text file for input:

```
Dim reader As StreamReader = OpenText("myfile.dat")
```

17. Read from StreamReader

```
Dim line As String = reader.ReadLine()
```

18. EndOfStream property

What Do You Think?

1. You must use a subscript when inserting the items in the target array. But you can use a For Each loop to access the source array:

```
Dim index As Integer = 0
Dim target(Names.Length-1) As String
For Each nam As String in Source
    target(j) = nam
    j += 1
Next
```

2. Because the Clone method returns an array of type Object, which cannot be directly assigned to a specific array type.
3. When the different instances of the class need to access a shared value. The default background color for windows is a good example.
4. Because the middle tier might be accessed by Web applications, Windows forms applications, or other specialized application types.
5. Because the parameter names hide the class-level variables, a technique called *masking*.
6. Because it might not be appropriate to create an instance of the class without assigning it custom values (such as ID number).
7. It stores a message string in the LastError property and returns a value of False. It might be better to throw an exception, which forces the calling method to acknowledge the error.

Algorithm Workbench

1. Property

- ```

Public Property BirthDate() As DateTime
 Get
 return mBirthDate
 End Get
 Set(value As DataType)
 If value >= #1/1/1900# AndAlso value < Today Then
 mBirthDate = value
 End If
 End Set
End Property

```
2. Investment class constructor
- ```

Public Sub New(ByVal IdP as String, Optional ByVal amountP As
    Double = 0.0, Optional ByVal tickerP As String = "")
    Id = Idp
    Amount = amountP
    Ticker = tickerP
End Sub

Enum WindowColor
    red
    blue
    green
    yellow
    lightblue
End Enum

```
3. A method with no return value works best for this:
- ```

Public Sub SetColor(ByVal input WindowColor)
 lblWindowColor.ForeColor = input
End Function

```
4. Splitting a string:
- ```

scores = inputLine.Split("\c");

```

Chapter 2: Classes

True or False

1. True
2. True
3. False
4. True
5. False
6. True
7. True
8. False

9. False
10. True
11. False
12. False
13. False
14. True
15. False
16. True
17. False (see Question 3)
18. True
19. True
20. True

Short Answer

1. Unhandled, or uncaught exception
2. ApplicationException
3. FormatException
4. StackTrace
5. TabControl
6. SetError
7. IsLetter
8. ToUpper
9. TextChanged
10. KeyPress
11. StatusStrip
12. ErrorProvider
13. ArgumentOutOfRangeException
14. CheckedIndices
15. SelectionMode
16. ToString
17. DateTimePicker control
18. AddDays
19. ToolStripButton, ToolStripSplitButton, and ToolStripDropDownButton.
20. DisplayStyle
21. SplitContainer control
22. Navigate

What Do You Think?

1. They may wish to enter the field values in a non-sequential order. Having the fields validated one at a time would prevent them from leaving some fields blank with the intention of filling them in later (before saving the form).
2. I prefer applications that prevent me from making mistakes. Telling users about their errors makes them feel incompetent.
3. It can be caught, to permit the user to be notified in a friendly and informative way. This is not always possible, because the underlying runtime system may be corrupted.
4. It can hold a statement that closes the file.
5. Quote from the chapter summary: *A software wizard is an application that leads the user through a series of predescribed steps. In each step, the user may be given choices that influence subsequent steps.*

Algorithm Workbench

1. Sprinkler wizard
At what time should the watering begin?
Duration of watering period?
Which zones are affected by this timer?
Repeat this timer daily (y/n)?
Create additional timers (y/n)?
2. Checking the txtZip TextBox:

```
e.Cancel = False
If txtZip.Text.Length = 5 Then
    For ch As Char in txtZip.Text.ToCharArray
        If Not Char.IsDigit(ch)
            e.Cancel = True
        End If
    Next
Else
    e.Cancel = True
End If
```
3. Passing an error message:

```
If Not txtName.Contains(" ") Then
    errProvider.SetError(txtName, "txtName must contain two words")
End If
```
4. TimeSpan object -- hours, minutes, seconds:

```
Dim ts As New TimeSpan(3,10,0)
```
5. DateTime example:

```
Dim dt As DateTime = Now
dt = dt.Add(New TimeSpan(3,10,0))
```

Chapter 3: Collections

True or False

1. False
2. True
3. False
4. True
5. True
6. True
7. False
8. True
9. False
10. False
11. True
12. True
13. True
14. False
15. False
16. False
17. True
18. True (although this is not obvious from the reading)
19. False
20. True
21. True
22. False – it is Path.GetFileName
23. False
24. True

Short Answer

1. The ArrayList class has an Insert method that lets you specify the position for the insertion. An array does not have this.
2. The IComparable interface.
3. The Equals method
4. The Item method and the RemoveAt method.
5. Use a For Each loop.
6. The list will contain multiple references to the same object.
7. Result will equal -1

8. A exception will be thrown
9. Dictionary
10. `Dim stuList As New List(Of Student)`
11. `KeyValuePair`
12. `stuList.ToArray()`
13. A comparator method
14. `Dim myAccounts As New Dictionary(Of String, Account)`
15. `myAccounts.Add("12345", New Account("12345"))`
16. Key and Value
17. Code that splits a string into an array of strings:
`words = myLine.Split(", "c)`
18. `ContainsKey`

Algorithm Workbench

1. LINQ query to list and sort items in a list of accounts:
`Dim query = From item in accountList
Select item
Order By item.Id`
2. LINQ query to list accounts created before a given date:
`Dim query = From item in accountList
Where item.CreationDate < #1/1/2005#
Select item`
3. LINQ query to list the names and balances of accounts:
`Dim query = From item in accountList
Select item.Name, item.Balance`
4. LINQ query to build a list containing the balance history of a specific account:
`Dim query = From item in accountList
Where Id = "10021"
Select item
Dim balanceList As List(Of Double)
balanceList = query.ElementAt(0).BalanceHistory`

Chapter 4: Using SQL Server Databases

True or False

1. True
2. False
3. False
4. True

5. False
6. True
7. False
8. True
9. True
10. True (since the Fill method belongs to the DataSet class)
11. True
12. False
13. True
14. False
15. False

Short Answer

1. ValueMember
2. One to many relationship
3. No
4. Connection string
5. A DataGridView control is created and initialized with the names of the table columns.
6. Code to exit a method if no selection is made in a combo box:

```
If cboSample.SelectedIndex = -1 Then
    Return
End If
```
7. RowHeadersVisible (set it to True)
8. The QueryBuilder does this, although you can also create database diagrams in the Server Explorer window.
9. DateTimePicker (which was introduced in Chapter 2)
10. A record

Algorithm Workbench

1. SQL query that creates an alias from city and state:

```
SELECT City + ' ' + State As CityState
FROM Address
```
2. Code that displays a modal dialog window:

```
Dim frm As New AllMembersForm
frm.ShowDialog()
```
3. SQL query that displays a sorted list of music albums:

```
SELECT ID, Title, Artist, Price
FROM Albums
ORDER BY Artist
```


4. SQL query that displays a single row from the Albums table:

```
SELECT ID, Title, Artist, Price
FROM Albums
WHERE ID = @ID
```
5. SQL query that obtains the value selected by the user in a combo box:

```
Dim selMember As String
selMember = cboMembers.SelectedValue.ToString
```
6. Code that fills the Members table from a TableAdapter query:

```
MembersTableAdapter.Fill(MembersDataSet.Members)
```
7. SQL query that lists Karate members who joined after a specific date:

```
SELECT ID, Last_Name, First_Name
FROM Members
WHERE Date_Joined >= @Join_Date
```

Chapter 5: Database Applications

True or False

1. False (it causes a TableAdapter to be created)
2. True
3. True
4. False
5. True
6. False
7. True
8. True
9. False
10. True
11. False
12. True
13. False (This answer is a little hard to fine. See Tutorial 5-13, Step 3)
14. True

Short Answer

1. In the default data directory for SQL Server (usually below the C:\Program Files folder).
2. Open the Server Explorer window, right-click on Data Connections, and select *Create New SQL Server Database*.
3. One to many, where Customers is the parent table.
4. The Data Sources window lists all of the DataSet classes, whereas the Server Explorer

window lists database connections.

5. Database Diagrams, Tables, Views, Stored Procedures, [Functions, Synonyms, Assemblies]
6. CustId column
7. TypeId column
8. One to many relationship
9. The child table contains a foreign key
10. A many to many relationship
11. Column check constraint, referential integrity constraint, and primary key constraint
12. Tables, views, and relationships
13. RepairServicesDataSetTableAdapters.CustomersTableAdapter
14. Appointments, Customers, and RepairTypes
15. Runtime data binding is to bind a control to a data source at runtime, using code statements.
16. DataSource, DisplayMember, and ValueMember
17. SelectedIndexChanged
18. FindByID

Chapter 6: Advanced Classes

True or False

1. True
2. False
3. True
4. True
5. True
6. True
7. False
8. False
9. True
10. True
11. False
12. True
13. True
14. True
15. True
16. False
17. True